

MEDUSA

Expanding EGNOS horizons

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**MEDiterranean follow-Up for EGNOS Adoption*

Euromed GNSS II/MEDUSA (1)

Euromed GNSS programme:

- Goal: European GNSS (E-GNSS) introduction in Euromed region, EGNOS in view of Galileo
 - Infrastructure implementation for EGNOS service provision (SiS)
 - Service introduction/exploitation and market preparation
 - 2006 - 2009 → Euromed GNSS I/METIS
 - 2012 - 2015 → Euromed GNSS II/MEDUSA**
- in parallel with the infrastructure implementation for EGNOS service extension to cover the area

Euromed Partner countries:

Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, Tunisia
(in Euromed GNSS I/METIS, Turkey was included and Libya excluded)

Euromed GNSS II/MEDUSA (2)

Expanding E-GNSS horizons in **North Africa and in the Middle East:**

- Primarily EGNOS in view of Galileo
- Following outcomes (priorities and CBA)/recommendations elaborated in METIS and shared with the Euromed countries
- Focus on priority applications (aviation, freight transport/professional road)
- Targeting decision-makers and countries' major players (governmental, business and research organizations)

Euromed GNSS II/MEDUSA (3)

Helping countries **utilise E-GNSS services**/development of enablers:

- Promotion of EGNOS use/added value/benefits (mainly in priority applications)
- Capacity building
- Technological know-how transfer
- Bringing the countries in their path towards E-GNSS services optimal exploitation and operational adoption
- Aiding the countries in preparing/setting up the basis for a feasibility assessment/decision making process
- Assistance to countries in developing their national short/medium and long-term visions

Euromed GNSS II/MEDUSA (4)

Fostering **regional and international cooperation on E-GNSS:**

- Building regional and national capacity
- National diversification and specific needs
- Establishing a network of contacts in the region and at international level

MEDUSA - implementation

1. Programme of **technical assistance actions**:

- Proof of concepts/demonstrations of services in concrete real use cases
- Development of tools enabling use of EGNOS (e.g. GNSS approach procedures, safety assessments, business cases analyses)
- Support in developing applications, including analysis of benefits
- Customised technical/practical trainings (e.g. use of receivers, GNSS performance monitoring)

2. **Networking and cooperation activities**:

- Promotion/public events
- National workshops
- Thematic deep dive meetings

3. **GEMCO (Galileo EuroMed Cooperation Office)**: set-up, staffed/trained and fully operational/running

GEMCO - Galileo EuroMed Cooperation Office

- Located in Tunis (Tunisia)
- Set-up and operated by MEDUSA, in agreement with MEDUSA key actors
- Acting as a point of reference for all Euromed countries and towards Europe
- Supporting the implementation of the assistance actions put in place by MEDUSA
- eLibrary
- Long-term (after MEDUSA's end)

- *Mission:*

- Incubator
- Catalyser
- Facilitator of initiatives related to E-GNSS in the Euromed region
- Promotion
- Networking

- *Contacts:*

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GALILEO
EURO
MED
COOPERATION
OFFICE

EGNOS service in the region (1)

Today's EGNOS service extension in the region - *infrastructure*:

- 2 Euromed RIMs in Abu Simbel and Agadir entered in operation in November 2013
- 2 further Euromed RIMs, to be deployed (one in Haifa)

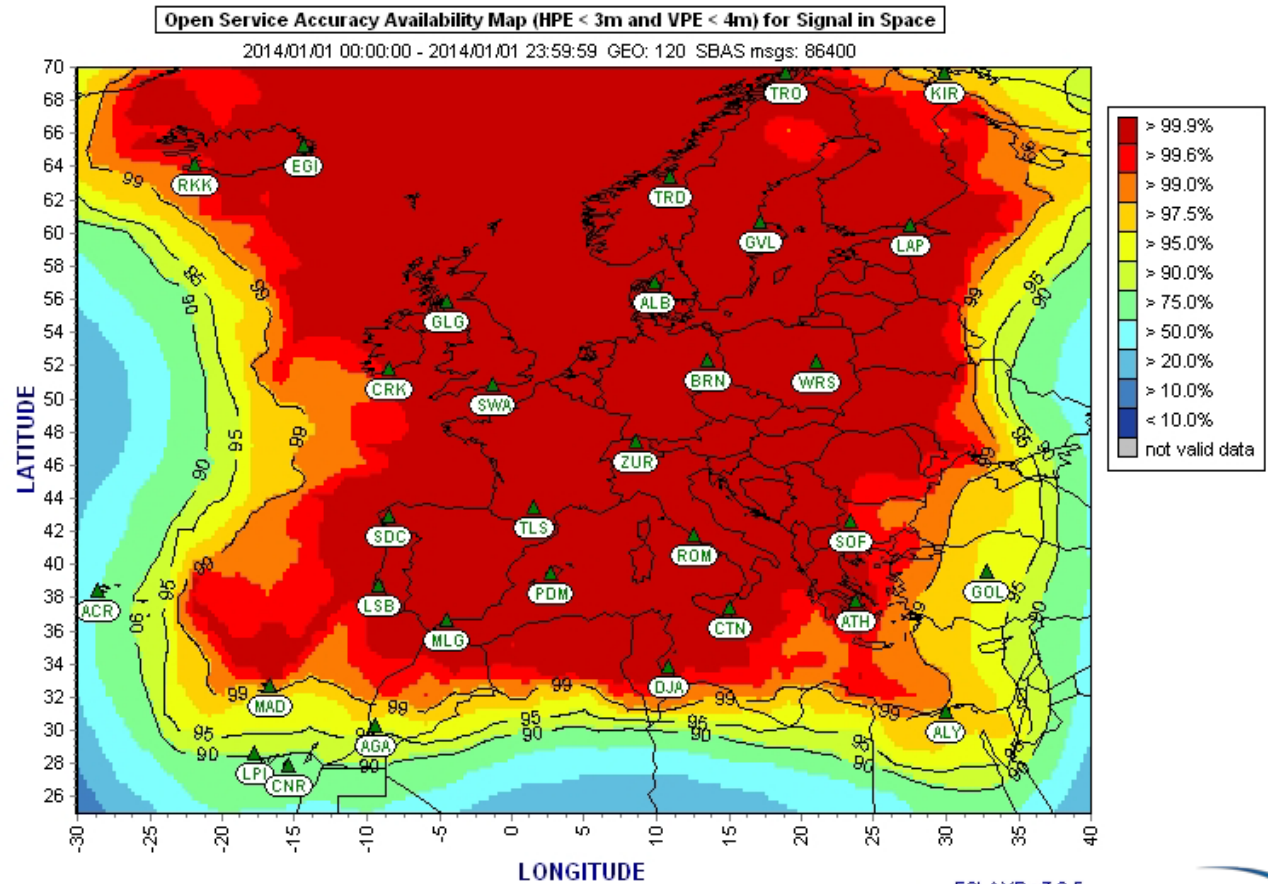


Source: ESSP

EGNOS service in the region (2)

EGNOS Open Service

Estimated accuracy availability in the region for a certain period of time
 Better performances expected wrt commitment

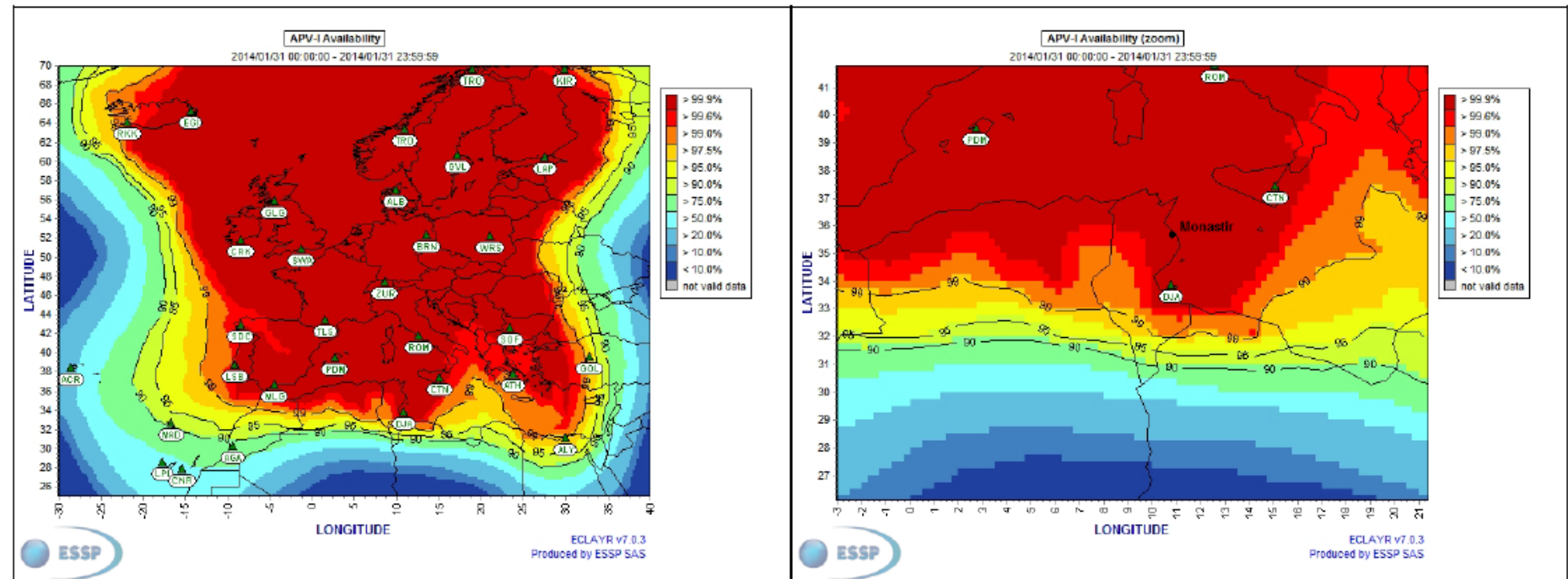


Source: ESSP

EGNOS service in the region (3)

EGNOS Safety of Life Service - APV-I Availability on 31 January 2014

Source: ESSP



EGNOS Euromed regional coverage needs



Priorities (in terms of aerodromes with favourable conditions for LPV introduction)
 Green – priority 1; yellow – priority 2; red – priority 3

“Case study” of EGNOS SoL in Tunisia (1)

- Goal: technical assistance action to support the implementation of GNSS approach (RNP APCH) and EGNOS based approach operations
- Validation for the airport of Monastir (Piaggio P180 Avanti)
- First complete experience of the use of EGNOS SoL service outside Europe
- Euromed team



“Case study” of EGNOS SoL in Tunisia (2)

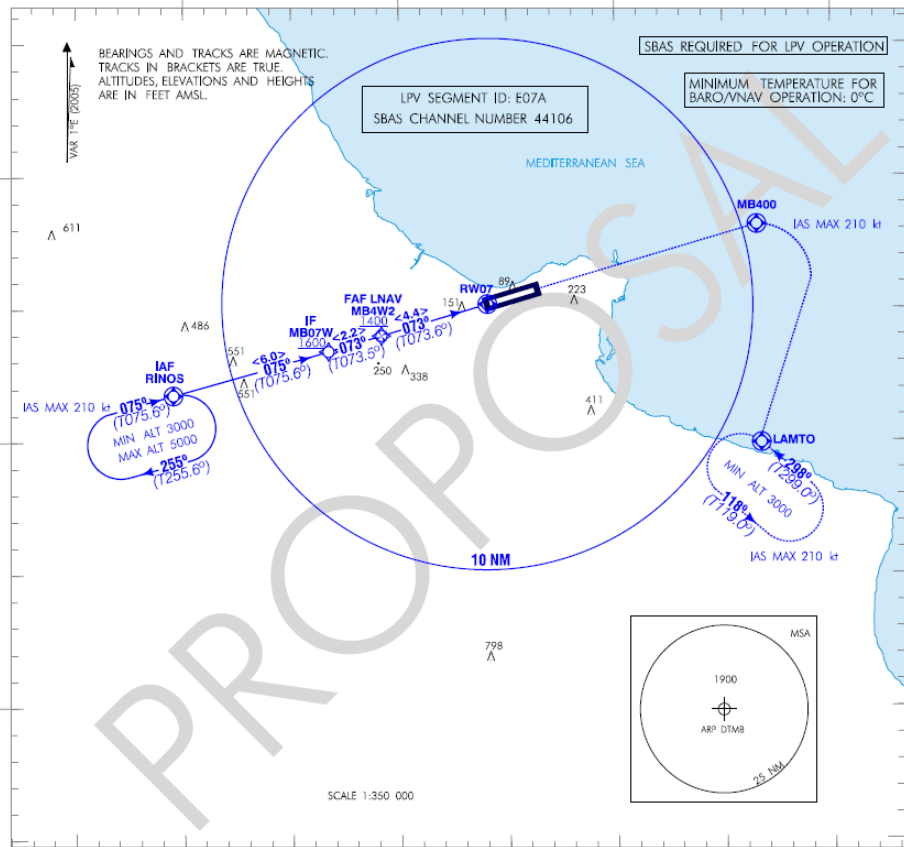


MEDUSA PROJECT
PROPOSAL OF INSTRUMENT
APPROACH CHART - ICAO

ELEV AD
9

APP 119.300
TWR 118.300
ATIS 128.125

MONASTIR - Habib Bourguiba
RNAV (GNSS) RWY 07



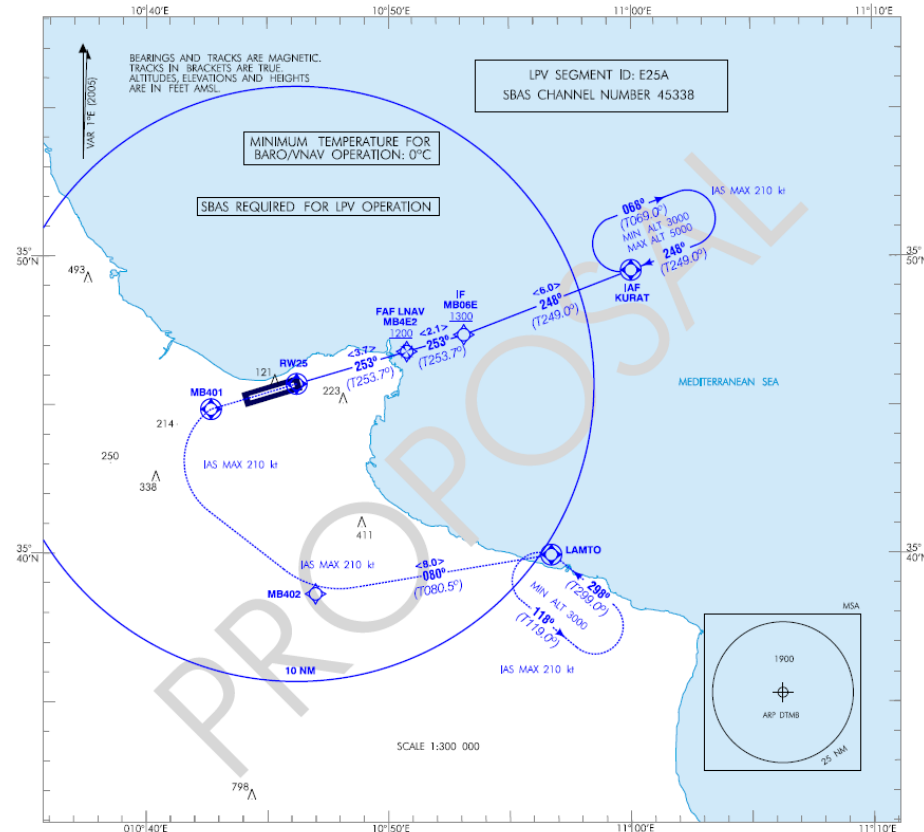
MISSED APPROACH: CLIMB DIRECT TO MB400, TURN RIGHT (IAS MAX 210 kt) DIRECT TO LAMTO, TO JOIN THE HOLDING AT 3000 FT (IAS MAX 210 kt), THEN FOLLOW CTL INSTRUCTIONS.

MEDUSA PROJECT
PROPOSAL OF INSTRUMENT
APPROACH CHART - ICAO

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MONASTIR - Habib Bourguiba
RNAV (GNSS) RWY 07



MISSED APPROACH: CLIMB DIRECT TO MB401, TURN LEFT (IAS MAX 210 kt) DIRECT TO MB402, TURN LEFT (IAS MAX 210 kt) TO LAMTO, TO JOIN THE HOLDING AT 3000 FT (IAS MAX 210 kt), THEN FOLLOW CTL INSTRUCTIONS.

“Case study” of EGNOS SoL in Tunisia (3)



“Case study” of EGNOS OS and EDAS in Jordan

- Goal: technical assistance action to support the use of GPS+EGNOS (EGNOS OS and EDAS) in freight transport/road
- Containers tracking & tracing
- Shipment from Italy to Jordan (port of Aqaba)
- First life experience of EGNOS use in the most distant areas from Europe
- Jordan customs’ real case



Lessons learnt

- MEDUSA is:
 - Implementing a capacity building programme on EGNOS and Galileo in the Euromed region
 - Helping the Euromed countries to take advantage of the early services offered by EGNOS today
 - Proving that EGNOS and Galileo can provide benefits to Euromed countries
- The Euromed countries:
 - Are confirming their interest towards EGNOS and Galileo
 - Are possibly considering E-GNSS in their national strategies, regional and neighbourhood policies
 - Have been encouraged to launch initiatives in the Euromed countries, on a national or on a sub-regional/regional basis, in the form of research projects, to take full advantage of the early services offered by EGNOS today (e.g. conveying GPS-based best practices into EGNOS)

Recommendations

- MEDUSA's experience/lessons learnt useful for other adjacent regional initiatives
- GEMCO is available also for other non-EU countries
- Regional cooperation essential for development
- Regional involvement key for capacity building and technological know-how transfer
- Regional networking and clustering fundamental for best practices and experiences sharing
- Countries' interest and commitment crucial for successful implementation



Thank you!

Questions?

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